

Software From Abroad

Strong Foreign Challenge May Fill IBM-Made Vacuum

By Alan Taylor

When IBM prevents maximum utilization of its computers by withholding hardware and software improvements from the market and when it tries to prevent the independent vendors from supplying these improvements, as it did in the case of extended core memory, which could hurt the U.S. computer industry.

Because, when the users become aware of inefficiencies and want improvements, they will take them from any source. Foreign software, according to IBM's U.S. customers, in this IBM-created improvement vacuum, could form a formidable challenge to U.S. computer supremacy.

Software innovation is whether the independent vendors will survive but whether the successful challengers will come from Grand Rapids, Mich., or Woods Woods, Australia.

Besides of capital requirements and other problems, foreign hardware is not now a threat. Foreign software is another matter.

In 1969 when IBM engineers were developing the controller for the then new IBM 2314 disk drives, they found they could hardwire the logic. But, they also found that they did not measure up. The cost would be higher than the cost of making a 360/30 central processor. So they abandoned the hardware approach in favor of microprogrammed controllers, which, in fact, were stripped down and reprogrammed Model 30.

1/2 in. Tape Revolution

Later, the use of microprogrammed controllers spread to computer tape systems, but the user still was not offered the opportunity to use the full capabilities of these controllers. The tape controllers, for instance, could have been used to support a complete revolution in 1/2 in. tape handling.

They could have provided users with the much wanted write-in-place tape systems, with multiple tape systems, or even with joint tape/disk installations. If the users had known how

CW Investigative Report

IBM's current dispute with the independent vendors of extended core hardware that affect not only users of IBM memory but also supplies manufacturers and even the whole U.S. computer industry.

This is the third in a series of reports on the effects of IBM's attempt to withdraw maintenance from 360/30 users with memories extended to 128K.

flexible the controllers were, they would almost certainly have been used. This is the reason the users' investment in tape and disk drives would have been preserved as the controllers were constantly "reprogrammed" to keep up with the latest technology.

This did not happen. The techniques involved are certainly being developed, but instead of being made available for the current generation of computers, they are being held back until they can be associated exclusively with some new hardware — such as a new set of 3-in.-wide tape systems.

When potential improvements are kept from current equipment, and only provided to users of brand new equipment, it certainly helps the marketing of the new equipment. This is often not done to compare the value of the two pieces of hardware, but simply the value of the new technique itself. Where the technique is valuable, the new hardware can be sold profitably without regard to price, provided the technique is available only to individuals with the new hardware.

What happens then is that an area of inefficiency is created between the older product — which has not been kept up to date — and the new product which does include provision for all the latest techniques. In this area of inefficiency, the stronger will be the urge among users to move up to the latest hardware, and the less cost will be involved in marketing the new generation of equipment.

However, Technical progress on a product has to be halted for

between two and four years because the implied cost of the new technology will push users to a new generation. And a lot can happen in those two to four years.

What happens next, so far as the implied equipment is concerned, is that the whole civilized world becomes aware of the inefficiency — and that nothing substantive is being done to halt it, or to significantly reduce it.

Software Blossoms

As a result of this proclamation of continuing inefficiency, with the implied later announcement of the need for the software blossoms. A software package aimed at the inefficiency can be produced, marketed and funded effectively even though a hardware product cannot be, because of relative low capital investment required.

So, the price of helping to sell new generations of hardware by restricting new techniques to the new hardware will include the creation of a new market for the new hardware, namely, where the facilities of the U.S. are still the most powerful, software manufacturer can take place anywhere in the world where computers are available.

In fact, curiously, it appears that people outside the U.S. stand a better than average chance of hitting the jackpot with systems software. This is because the hardware has to match and beat the IBM product in their own backyard before thinking of marketing in the U.S. And when they do consider the U.S., they realize that the U.S. software producers can use. So if they upgrade their product to beat the U.S. software industry

as well as IBM products. By contrast, no such compelling need to improve faces the U.S. products, which have always found plenty of prospects who only know the IBM offerings.

This is not an idle hypothesis. It has already happened. When development of the IBM DOS was practically stopped in 1968, an Australian named Boyd Munroe started work the round of an efficiency aid for DOS users. Now, after being twice as successful as the IBM markets, the aid has around 400 sales and is one of the most successful software products in existence. And, as long as DOS users are around with a need for efficiency aid, with a virtual and some idle computer time as an academic exercise, Munroe has made a well-funded industry of his own — and can get Australian users to pay for his products of new products even if he runs out of the dollars that the U.S. market is earning for him.

After such a success, do you expect him to lie down and do nothing else? Or do you expect him to be looking over the 370s now in Australia, for their weak points? Is there anything to stop him or others from moving to Australia (or other countries)? The money markets in other countries may be smaller than ours,

but they can support the small needs of software development.

Compare this with the situation in the U.S., with the money market frightened of IBM's next move, with technicians accustomed to permeating their work to the piggybacking of the U.S. market, but because it is so marketable that it could upset IBM's plans for another round of product changes.

It is possible, of course, that new products will grow and sell. But the situation is away from the IBM shadow, where the developer is looked on by all as an amateur, will be a lot more difficult to penetrate the more advanced technology.

The IBM action in attacking the oversized memory installations has virtually extended the improvement vacuum over most of the U.S. financial market and the market of the independent computer manufacturers here. As a result, it will most likely intensify the probability of foreign leadership springing up to fill the market gap and into both ends of their hardware, thus endangering the whole U.S. industry's position.

The only question remaining is whether the eventual outcome of the current dispute between IBM and the memory manufacturers will lift this threat — or intensify it.

IBM to Maintain Extended Core 30s

(Continued from Page 1)

360/22 CPU with 64K, which is beyond IBM limits, and found it acceptable to continue maintained.

Computer Investors Group also reported IBM had changed its installation limits with memory within the IBM limits for 30s, 40s, 50s and 65s and a 360/22 installation that was expanded to 64K.

The IBM move to service 360/30 CPUs may force it to revise some of its maintenance policies. IBM has been using since the present contracts require IBM to replace a CPU if it is not able to correct the machine.

But before IBM can alter any of its contracts, it agreed, in the third letter, to give Itel advanced

notice of the changes.

If Itel does not feel the changes are fair to users, it can go back to court and ask the judge for a ruling before IBM can make the contract changes.

In addition, Itel brings out products that go beyond the standard memory sizes, the court would have to rule on withdrawals of maintenance before IBM could take any action in that regard.

As part of the settlement, AMS and Itel agreed to drop their antitrust suit against IBM.

The agreement was approved by Judge Lloyd Burke, but the court retained jurisdiction in the case to make sure that the terms of that settlement are obeyed.

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The secret of ITEL's superiority over IBM core is found in its basic monolithic memory module. This semiconductor chip contains 1024 bits of storage. These memory elements are fabricated in batches of thousands, which cuts costs dramatically.

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But even monolithic memory elements can sometimes fail. That's why ITEL has ECC: Error Checking and Correction. Should a memory

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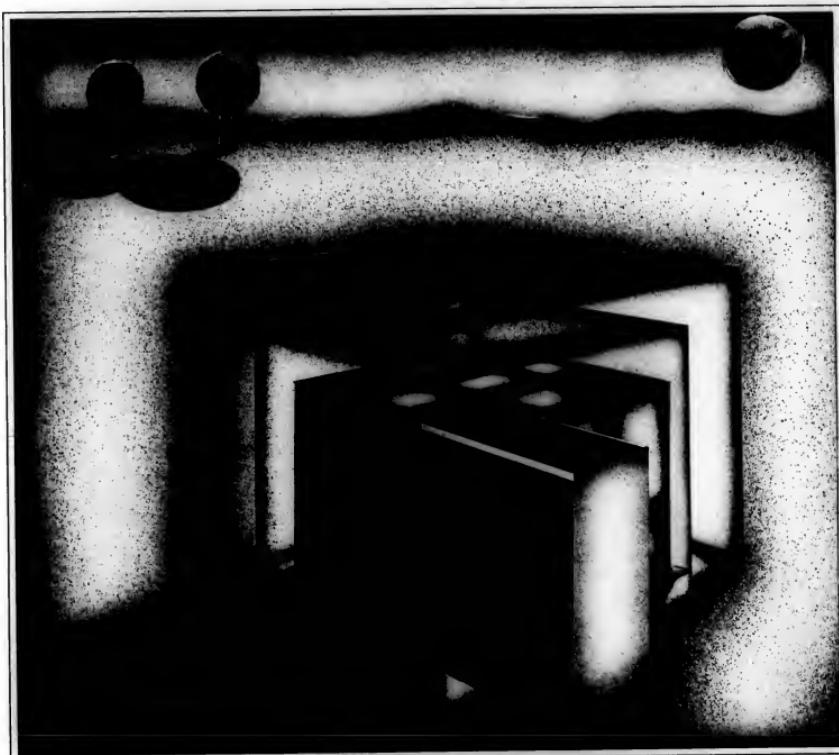
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After the workshop, users inspect Blue Crown/Blue Shield direct data entry system and communications lines to computers. The system, using 167 remote terminals, is explained to (left to right) William Davidson, of Texas Instruments, and Milford Springfield, vice-president of operations at the Southwestern States Bankcard Association (SSBA) here.

of William Cameron & Co., by Gregg LeMaster and David Taylor.

...Coping With Independent Carriers

DALLAS — Data transmission among several independent carriers, such as the ones mentioned for western telephone companies, can present special problems for users, according to

Second Day

Computerworld Forum panelist Ron Winkler, of Executive Control Systems here.

Winkler's company performs the computing functions for Sky Chef, the food subsidiary of American Airlines, as well as for

considerable backing despite his relatively small size.

With several carriers over a dial network between Denver and Dallas, there can be trouble in "interfacing the two carriers."

The phone system in Denver "does not recognize transmission failure," he told his workshop attendees. If a call is connected, "we have to phone them on a second circuit," and tell the user at the opposite end to reset the modem, he related.

Data transmission at 9,600 baud can be "feasible" and dependent on the number of terminals, according to Frank Huessner, of Agency Records Control Inc. (ARC), of Houston.

ARC serves several different insurance companies from its computer system in Bryan, about 100 miles away.

With large volumes of data being processed late in the month, Huessner preferred the 9,600 baud rate, with independent modems. "We are working to cut turnaround time and eventually get away," he related.

Ron Atchison, the city's DP director, told his workshop on private networks that the city of Dallas tended to overdesign its teleprocessing networks at the same time that it underestimated its traffic. The traffic load jumped from 22,000 inquiries a day last summer to 33,000 daily now. It

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CW Southwestern Users' Forum

Users Like Accuracy of OCR

DALLAS — Rejects are "something you live with" when using OCR equipment, and must be considered along with other factors before choosing OCR accuracy, says Bill Bales, vice-president of operations at the Southwestern States Bankcard Association (SSBA) here.

Whether the reject rate is 2% or 30% is largely a function of the quality of the document, not the equipment itself, he told his OCR workshop during the Southwestern Computer Users' Forum and Exposition.

Typing on OCR form can yield an extremely low reject

rate, he related, adding "we get upset when it gets over 7%." But hand-printed forms or credit card receipts that go through a mechanical imprinting device

First Day

may experience higher reject rates, perhaps as high as 20%, and disastrous results, he added.

SSBA, which processes Master Charge accounts for 495 Member restaurants key-to-disk equipment, is the first to accept the high cost of using on-line data entry, there are certain benefits and advantages, one of which includes increased keying speeds, said Gregg LeMaster of Blue Crown/Blue Shield. He told his workshop that his bank data entry workers that keystrokes are now averaging 12,000 hr, higher than when the operators were counting their own strokes during the keypunch days.

Another advantage, he indicated, is the ability to key a record. Responding to a question on record size entered into the system, LeMaster commented that the operators "fill the screen." It is a "free form" key, he said, so operators have to fill the screen two or three times to enter one complete document.

Dr. Dick B. Simmons of Texas A&M had intelligent terminals workshop there recently is an excuse for not using conventional keypunching when a mainframe's intelligent effects costs less than a keypunch machine. The only thing preventing wider use of

programmable terminals is a very definite software gap.

The software gap exists primarily because those users who wish to have more than data entry capabilities, since that basic application is often provided by vendors of the terminals. Even though the main makers have begun to realize the need, under the industry's long dependence on the OEM market was blamed for the lack of generally useful software.

It's fairly easy to tell when a user should consider switching from conventional keypunching to better data entry, says LeMaster, according to Norman Abdellah of Zale Corp. at the keypunch replacement workshop but the choice of what to use as a keypunch replacement should not be made casually.

The importance of looking at several alternatives was emphasized by panelist Dave A-Bright of Sears Roebuck, who joined Abdellah in the workshop session. Sears looked at key-to-disk, but the software for the on-line-based system just wasn't good enough, A-Bright said.

With its changeover from conventional keypunching, Sears has now increased its data entry productivity by 25% to 30%, at less cost, but the company had a longer learning period than it had anticipated, due to the component level, he added.

Zale rejected the key-to-tape concept, because it didn't like the tape pooling required before the data could be entered into the company's mainframe for processing.



Incorporated SPD 10/20 Intelligent CRT (CW Photos by E.J. Bride)

Mini Links May Cause More Coordination Problems

DALLAS — Using many mini systems may cost less than using a single centralized mainframe, but will probably cause many coordination problems, for both people and programs, according to independent Robert W. Worthy, vice-president of Medical Information Inc. (MII).

Personnel costs, for local programmers to work with the scattered mini systems, may just as high as for a staff to serve the bigger machine, Wells said.

Even linking large-scale CPUs, with each having a particular purpose, can cause problems, Wells noted. MII moved from a 145 to a 370/145 system, in addition of one 40 dedicated to teleprocessing, tied to a 370/145 to handle batch processing. Unfortunately, the 40 couldn't get at the disk files of the 145, because of the speed of the 145.

The problem was solved by inserting "2,000 to 3,000" instructions that IBM didn't do anything but kept control of the 145 long enough so that the 40 and the 145 could work together.

In his comments on Cobol, Atchison said Cobol can be used as long as users know how to define jobs and dispatch priorities, as well as avoid recompiling.

Henry Johnson of the Federal Reserve Bank told his workshop on system software that software available from IBM isn't always good enough to use. He noted that his installation is using the 145, as well as the 370/145 system, and the 145 could work together.

Speaking at a session of the Federal Reserve Bank, he told his workshop on system software that software available from IBM is not as significant as many users think, according to panelist Gene Tuttle, vice-president of the First Trustee National Bank.

Service and performance problems using independent peripheral equipment are not as significant as many users think, according to panelist Gene Tuttle, vice-president of the First Trustee National Bank.

Speaking to attendees at an operational efficiency workshop, Tuttle said his installation had received "good support" from all five vendors in his center. He also complimented the sup-

port independent vendors can give to the IBM side of the house, citing a problem with IBM software. "After IBM had given up," he related, "our independent technical representative found the problem and recommended the fix" which solved it.

Robert G. Worthy, of Bell Helicopter, told his workshop, "we did everything we could do to do more efficient work, but more than going in our CPU."

The advice he disregarded included leasing his CPU from a third party ("IBM still has the maintenance"), adding core, and using other independent peripherals.

A study had shown Bell's CPU was active only 40% to 50% of the time, he noted, and the answer to this inefficiency was to make the processor busier.

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Lawyers Told

Potential of Computer Searches 'Great'

By Edward J. Bride
or me on staff

ATLANTA — Acceptance and use of computers by lawyers represent "the most significant happening" to the legal profession "in at least the last 100 years," members of the American Bar Association (ABA) were told here recently.

Even so, because of the size of investments needed to develop information systems, "a way must be found for the public sector and the private sector to share data bases and computer programs."

The speaker was Carl S. Mallow Jr., of the Office of the Judicial Advocate General of the Air Force. Mallow was the pioneer of Legal Information Through Electronics (Lite), a full text information retrieval service offered to government users by the Air Force.

While the use of computers by lawyers is increasing, "the great majority of lawyers are using computers" during the course of trial, where time is of the essence," Mallow commented.

"The thoroughness of computer searching will be of great assistance in the writing and study of briefs upon appeal," he added.

Mallow was one of about two dozen speakers at the ABA's first National Conference on Automated Law Research, conducted at the Georgia Institute of Technology.

The most significant use of computers by lawyers comes in the areas of searching stored information on legal decisions or in efforts to find "precedents" in litigation, speakers indicated.

But when the outcome of legal proceedings is at issue, electronic legal research should be provided to the legal profession "only through the organized bar," according to James A. Asman, president of the Ohio State Bar Automated Retrieval System (Obar).

Charles E. Tidwell, who helped install a computer-aided typing system in the Georgia General Assembly, noted "anyone who deals with a great volume of text" should be interested in systems "which would help manipulate that text."

Advocating the use of computer technology in helping to write and edit legislation, as well as review, analyze and defend the laws, was to establish strong business relationships with all technicians who might possibly get involved in setting up such a system: hardware experts, software types, consultants, facilities managers and any others.

Jerome S. Rubin, president of Mead

Distributed System
First of New Breed

(Continued from Page 1)

ory reference cycle taking 1.8 usec.

The MRX/50 offers twice the performance with non-memory reference times of 800 nsec and memory reference cycles taking 900 nsec. Memory is available in capacities from 16K to 128K bytes.

Both models use solid state MOS memory.

The Memoxys system will support four 360-compatible languages: RPG II, Cobol, Assembler and Fortran.

As many as four Memoxys 660 (2314-compatible) drives can be attached. The selector channel holds eight control units, each of which can support up to four tape drives.

Rental prices for the MRX/40 and MRX/50 range from \$1,000 to \$10,000/mo. The MRX/50 configuration is capable of data entry, inquiry, microprogramming and remote processing with 48K bytes of memory, 600 line/min printer, three 29 Mbyte disk drives, two asynchronous communications lines with Memoxys terminals and one synchronous line — rents for about \$6,000/mo.

First shipments are scheduled for the third quarter of 1972.

Data Central, Inc. (MDC), which operates the computers for Obar, said the use of fast CRT terminals enhanced interactive research capacity and "dramatically confirmed the practicability of computerized legal research."

Over the last two and a half years, "rigorous controls have been maintained over the Obar program, to permit strict observation of user behavior and careful analysis of system operation, Rubin reported.

Lawyers have reported to MDC, Rubin continued, that learning to use computers is much easier than learning to use the traditional, hierarchical subject matter indices of manual research.

"An extraordinary relationship," he continued, "is that between man and the machine." Despite their "notorious reputation for conservatism," he explained, lawyers have now shown "a surprising openness to learn with the traditionally-restricted techniques of manual research" and to "embrace the technocratic."

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COMPRESS

Superior Court Gets Calif. Theft Case

LOS ANGELES — Jerry Neal Schneider, a communications equipment firm president, who was arrested for allegedly stealing nearly \$1 million worth of Pacific Telephone Co. supplies by cracking the code for the company's computerized

News Wrapup

order system [CW, Feb. 16], has been bound over to Superior Court.

Schneider, 21, is charged with multiple counts of receiving stolen property and grand theft. He was arrested Feb. 8 by investigators who said his firm, Los Angeles Telephone and Telegraph Co., was used to order the equipment.

Central Welfare Registry Urged

NEW YORK — The state welfare inspector has recommended the creation of a central registry that would keep a computerized record of every welfare recipient in the state.

In a series of recommendations for tightening the accountability of the welfare system, George Ber-

City 'Finds' Losses \$106,000

SAN MARINO, Calif. — A computer "error" has cost this city \$106,000 in taxes.

The city's computer made no mistake, but the city mistakenly collected taxes on a computer outside of its jurisdiction.

The city collected \$106,000 in sales taxes on a computer in nearby Pasadena and now has to return the money to that city.

Under the statute of limitations had not run out, the city would have owed Pasadena another \$74,000 in taxes collected on the computer over two years ago.

That Cough May Cost More

NEW YORK — Federal authorities are expected to file into computers the company records of two North Carolina mail order shippers to find New York residents who bought mail order cigarettes from the firms without paying state and local taxes.

A state tax official said 100,000 cigarette shipments were involved but the number of individual buyers had not yet been determined.

Mailman Job May Be Easier

WASHINGTON, D.C. — The U.S. Postal Service plans to experiment with a new type of computer-assisted address-change system which would assure fast, legible and accurate addressing for forwarded mail.

The test may lead to nationwide elimination of the mailman's job of manually revising the addresses of mail to be forwarded. Printed, pressure-sensitive address labels are used.

At Charlottesville, Va., the post office has a link to a computer in the Washington headquarters which determines whether a piece of mail can be forwarded, and if so, provides the correct address label.

Yale Looks At DP Talent

NEW HAVEN, Conn. — Yale University freshman hopefuls now can submit paintings, essays, mathematical compositions, science projects or computer programs as part of new applications process.

According to admissions committee officials, the new practice will help to evaluate better the interests and abilities of the candidates.

Missing Comet Found

PHOENIX — After having vanished for 93 years Tempel I has been found.

The missing comet studded astronomers since its last sighting in 1879.

But Dr. Elizabeth Roemer of the University of Arizona used a computer to predict the time Tempel should return on its orbit. The calculations were correct and she was able to photograph the comet.

langer called the welfare administration "so characterized by staff incompetence, inefficiency and dishonesty that abuses within the system abound."

Berlinger said the central registry would hold a file of all recipients in the state now on the rolls of local districts.

Just Who Does He Think He Is?

NEW CONCORD, Ohio — A college sophomore enrolled in Computer Science and programming courses at Muskingum College has found an error in an electronic textbook by Paul Samuelson, winner of the Nobel Prize.

Albert Hui found the error while checking out material on his college computer. The error persisted through five editions of the text used in most college courses.

The textbook said that in the process of multiple deposit expansion by a series of banks, all but one cent of the final effect of the deposit expansion from an initial deposit of \$1,000 would be realized within 25 generations of expansion.

Hui checked the computer to find that it would require 59 generations for bank expansion to reach

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Editorials

'DP Error' Not a Defense

For convenience, we teach employees and program computers to take certain actions when input is missing. The specified action all too often is to have the person or machine assume that so-and-so is true if no contrary data is provided.

With human employees, there is at least a chance that disaster will be prevented because some human "senses" something is wrong and decides not to make the usual assumption.

But, unless the programming makes specific provision for it, a computer will never "sense" something is wrong and will always make the assumption that so-and-so is true.

Not only can companies be held responsible for assumptions made by their employees, but, according to Judge J. Murrah of the Tenth Circuit Court of Appeals in Denver, companies can be held responsible for assumptions made by their computers [CW, March 22].

How many assumptions is your computer making every day?

Ghost-Written Programs

If a college student buys a term paper instead of writing it himself, he probably has not done his education a great deal of harm. Most occupations don't require the type of research and writing that is learned from such school projects. Though the student has missed a chance to learn something that might be useful to him, the major objection to the practice is that cheating is more than a minor form of dishonesty.

But when a computer sciences student buys computer programs instead of writing them [CW, March 21], he may be affecting his future ability to carry out the responsibilities of a job in the computer field. He is not only a dishonest person, he may also be becoming an incompetent person.

We don't want such people in the computer community.

Authorities have begun a crackdown on the term paper racket. We urge that laws also be passed to make it illegal to either buy or sell computer programs for such fraudulent purposes.



'It's beyond me, but I'll get my ghost on it right away.'

Letters to the Editor

'What's Good for IBM

Not Good for User

IBM has been aggressively marketing the outright purchase of 370/155s and 165s. A recent article on IBM in *Fortune* indicates the 370/155s will be completely obsolete in five years. It indicates the 165 and 155 models were announced on the basis of demands of the marketing force rather than the knowledge of technology and system content indicated by engineering and product development.

It appears that the purchases of 370/155s and 165s will be financing the IBM foundry generation of computer systems at a price much demanded by the stagnant 6% increase in rental business in the U.S.

It appears that IBM is offering obsolete equipment for our present needs, and is actively selling it to customers. It is clear from the article that IBM software will take up considerably larger amounts of memory than present cycle times. It is clear that core memory machines cannot meet in the future to support such applications on a time increment basis.

Our company being in the used computer business, I feel this particular approach by IBM as being self-serving rather than satisfying the low percentage of outright sales that have been historically made to end users for 360/370 computer equipment.

Again, it appears that what's good for IBM is not good for the customer, and what is good for the customer is not good for IBM. To save customers paying enormous sums of money for outright purchase for equipment that has such a short life cycle reflects directly on the ethics of the world's largest uncontrolled monopoly.

George S. McLaughlin Jr.
GSM, N.J.

Clarification Offered On SS Number Use

In a letter Feb. 23, the writer quoted the editor of *Government Data Systems* on the use of the Social Security number for identification in part as follows:

"The inclusion of the Social Security number ... will not damage a sensitive federal statistic." I think it would be helpful to clarify the situation as it exists.

The use of the Social Security number by non-federal government organizations as an identifier or recordkeeping device is neither authorized nor approved by the Social Security Administration. However, there is no provision in the Social Security Act or in any other federal statute or regulation that prohibits such use.

In testifying before the Senate Select Committee on Constitutional Rights on March 15, 1971, Secretary of Health, Education, and Welfare Richardson made it quite clear that use of the Social Security number by non-federal organizations is illegal, nor, in itself, an invasion of privacy, since the number reveals no information about the person to whom it is assigned, nor does the Social Security Administration release any confidential information from its files to individuals and organizations that may be using the number for non-program or non-federal purposes.

Jack S. Futterman
Assistant Commissioner
for Administration
Department of Health,
Education and Welfare
Social Security Administration
Baltimore, Md.

How to Reduce Keys For Arab Typesetting

In reference to Joseph Hanlon's letter [CW, March 8] on Arab typesetting, I would like to point out that Hanlon is in a sense quite correct. The large and vigorous output of newspapers and periodicals in Arabic and Persian has been made possible only by the use of semi-automated typesetting systems. Even the mechanical typewriter can be used there (it does not seem to be a standard electric for this), and I have myself fallen back on that to

provide a master for offset printing.

But the fonts used for such systems do not contain enough of the various forms of Arabic script characters, and few readers of Arabic think of them as intrinsically desirable.

There is, moreover, one basic difficulty with these existing systems that is made obvious by the reference to a 280-character keyboard. A system that requires 200-odd keys for a mere 35 (Arabic) or 60 (Persian) basic letters is not in use.

One of the chief benefits of the system I am working on is that it will stick firmly to the restriction: one basic letter = one key = one binary digit value. That is, one letter is one byte, and less susceptible to error than any of the existing models of Arabic script type-writer.

Pierre A. MacKay
University of Washington
Seattle, Wash.

Writing Sans Ring

The Special Report of March 8 quotes Mike Murphy as follows: "There is no reason that a tape transport can write on that tape" when the write ring is removed.

This is just not so. It would be a misconception of the write ring to physically disconnect the heads rather than "logically" disconnecting the heads.

Power failures or surges can often cause a tape writer's ring to become disengaged. The microswitches used to sense the write ring can often be jammed or "tricked" by the operator, and when they fail mechanically, they often fall in the "write" position.

It is time this misconception is cleared up and the equipment made to perform as it should.

N.A. Eisner

Bellair, Texas

Preference will be given to letters of 150 words or less. Letters should be addressed to: Editor, Computerworld, 797 Washington St., Newton, Mass. 02160.

Enter Furr Challenge Cup Contest

Can Your DP School Meet a Challenge to Excellence?

Data processing schools are likely to much surpass their quality. Few graduates boast that they come from XYZ School, (the way they might if they came from Yale), and many DP school graduates like to forget where they came from. It is not their training, so bad is the feeling on this subject. The graduates like to have others think they had a formal training, which is a bit ridiculous.

Yet, when you start looking, you find the DP school graduates working in the same professional — and successfully, too. — They are not being automatically pushed aside when one of the university computer science graduates arrives on the scene. They normally continue in the professional work. So it appears that the picture is somewhat biased.

Good Achievements Also

Now there is an opportunity to show the other side of the coin — the good that the DP

schools do, how well they serve their students, the DP technology, society — and what holds them back from doing more.

And in showing how well they do, instead of being thought of as simply indulging in commercial boasting, they will be seen performing the real function for which they have been created — DP education.

A Furr Initiative

This has happened simply because one person, Cole Furr, principal of Coleman College in San Diego, had the initiative (and the understanding) to start up and proclaim, "we are the best data processing school in the country." He started the ball rolling, and it was then picked up by his faculty, his students and his graduates.

Active Alumni

The graduates got involved because they have a very active alumni association. It is quite widespread, because in the past eight years graduates have increased, but there are still many in San Diego so that the college can boast a third of the local DP managers and trainers. Coleman College graduates have monthly meetings, and when they hear about Furr'schal-

lenges, they picked out their role — to provide a trophy to the winner, and to arrange for its award.

The trophy, reasonably well made, is the ball rolling with the school's name on it. Cole actually does not want to win the trophy himself. I think he really wants to be beaten by some school from Rhode Island, or Indiana — which he would never have heard of if he had not put out his challenge.

I think he suspects this is the simplest way to find out some new ideas — and you know he's quite right. In fact, he could easily take the challenge can expect to reap major benefits just from the interchange of data, and the reconsiderations which will inevitably occur. So everybody gains, and this is excellent.

Cup Rules

The first rules of the competition are in the accompanying box. Cole Furr should contact Paul E. Salicido, Fotomat Corp., 920 Kline St., La Jolla, Calif., 92037 for details. Salicido is the president of the alumni

How to Enter Furr Challenge Cup Contest

1. The competition is open to any data processing school in the U.S. Whether the school is public or private, or whether it is solely dedicated to data processing or not, is no matter.

2. The school can be represented by its administration, its current students or its alumni. These may work together or produce separate entries.

3. The Furr Challenge Cup will be awarded to the school which produces the best data processing school in the country before the closing date for entries (July 1, 1972).

4. An entry should contain five separate reports showing the quality of the school's work, and the problems that are hindering its further improvement of quality. The reports should be limited to:

"How XYZ School Excels in Looking After Its Students' Interests."

"How XYZ School Contributes to Improving Data Processing Technology."

"How XYZ School Contributes to Improving Data Processing Education."

"How XYZ School Assists Data Processing Relations With the Community."

"What Prevents XYZ School From Being Even Better Than It Is."

In addition, copies of curricula, lecture notes, etc. should also be provided.

5. Schools intending to enter should notify Paul E. Salicido, Fotomat Corp., 920 Kline St., La Jolla, Calif. 92037.

is to bring out the different characteristics that a school should always be striving to improve. Its treatment of students is obvious, but how it helps knock down barriers to still further improvements is equally important, as are the reports of what which reports are being called for.

The individual reports need not be long. They should, however, be long enough to allow other schools to evaluate the ideas, and to help others see how they in fact provide an improvement possibility that could be incorporated into their operations. These reports will hopefully be the main output of the contest.

Response to Criticism

In addition, the schools will also be asked to allow inspection, and to respond to any criticism made, so that the judges can also evaluate their capability for improvement and their willingness to consider alternatives.

I think the idea is great. If you do, why not get your school to do it? Encourage students, contact Salicido. And if you can let me know that you are proud of your school I could perhaps tell the world just as I have told that the Coleman College people are proud of theirs.

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Poor Tape Quality Attributed to Design of Drives

"The tape drives are said to operate with greater tape of a particular specification, but failed to provide the users with any way of knowing whether his tapes match the specification. As a result, he has remained ignorant of the real situation concerning the different types of good and bad tapes — and has been purchasing unsuitable supplies without having any effective way of knowing what he was doing."

"The most important single action that could help the situation would be for each installation to have one drive modified

quality or safety precautions that the user might feel were justified under the circumstances.

Instead, it refers to the condition of the tape when tested in the manufacturer's laboratories, on specialized drives, and as a part of the manufacturing process.

Tape Quality Changeable

Don Collins, committee chairman, points out that many things can happen to a tape after it leaves the manufacturer and that may affect the quality without the user's knowledge. There are problems in delivery, temperature changes even when a tape is moved from one room to another, or put into storage or in a vault. Some tapes are also being used with drives that have rubber capstans, although the backing of the tape is not suitable.

Collins says he was greatly encouraged by the attitude of the magnetic tape suppliers. Offers of help have come from many of them, as well as from large tape users. It will be some time before all the replies can be assimilated, and the work is continuing very actively.

Industry Form Proposed

Meanwhile, the committee feels it must provide a means for giving the magnetic tape supplier the relevant facts about the installation and the possible ways the tapes will be used, and asks the supplier for details of appropriate tapes, and details of

detects chemically that the environmental rules have been broken. The tape may also have been unknowingly exposed to improper conditions.

Collins thinks such an approach will help searching offices for the value their items require, but he still says first the tape/drive/tape interface must be put into order by allowing the drives to check the current tape condition.

Unprofessional Practices Committee

The SCBPI Unprofessional Practices Committee is also analyzing the responses to its questionnaire from the Taylor Report readers [CW, Feb. 23]. This deals with whether providing output that does not arithmetically add up is a good idea. It is clear that it is clear that, however, that many of the items considered have been almost unanimously condemned by the readers and that some future consideration must be given.

Guidelines, Talks

The two most common suggestions as to what the committee should do are to publish guidelines, and also to arrange for discussions with the chapters of the various societies that the committees can be brushed out more directly.

Al Kocouras, committee chairman, has already heard from one firm which has turned the guidelines into company procedures, and used them in the installation standards manual. So it appears that this approach will be possible.

Guidelines

To make it work, however, the committee must receive copies of what appear to be bad or unprofessional output. As Kocouras points out, it is much easier to visualize specific examples, rather than try to handle items theoretically. And the committee will also need to hear from chapters which might like to discuss the matter scheduled now for next year's program.

Al Kocouras, committee chairman, has already heard from one firm which has turned the guidelines into company procedures, and used them in the installation standards manual. So it appears that this approach will be possible.

Other Practices

In addition to the current work, the committee has begun receiving examples of what writers consider poor practices they would like examined. These include a bill which has an unusual amount due, together with the legend "The Law Requires that All Taxes Shall be Paid." The actual amount legally due (because apparently the law does not say that the buyer has to pay the seller's taxes for him) is not shown anywhere on the bill!!

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Russian stamp issued in 1967 to commemorate industrial progress.



Computer tape stamp issued by Poland last year to honor Polish technicians.



A "humanized" computer is the design appearing on three Tunisian stamps issued in 1966.



East German computer stamp issued in 1966 to publicize the 1966 Leipzig Spring Fair.

Countries Stamp Their Approval

By M.W. Martin
special to Computerworld

Since the first stamp honoring the computer industry was issued by Israel in 1964, 12 other governments have followed suit. There have been 22 such stamp issues and more are to be expected, because once a stamp design is found acceptable in several countries, other countries usually follow the trend.

It is standard practice for postal administrations to honor important industries with postage stamps. Strangely, there is no U.S. DP stamp.

There are stamps which specifically deal with computers and others related to the computer industry. They depict automation, management processes in calculating machines and automation in all forms.



One of a set of designs made by a computer, issued by The Netherlands. (CW Photo by L. Flanagan)



Ancient arithmetic and a computer card appear on the 1968 United Arab Republic issue.



Canadian census commemorative depicting a punched card.



The world's first computer stamp issued by Israel.



"Computer symbols" is the designation of this 1968 Colombian stamp.

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Random Notes**Cable Planning Package Rows on 360, ICL 1903A**

LEATHERHEAD, Surrey, England — Significant savings in the planning of large-scale projects can be made if the cable processor as possible with the Computer Aided Cabling Systems (Capita) software for OS/360, from the Electrical Research Association.

Use of the three modules can reduce time and costs by up to 50% in routine planning, scheduling and pricing of projects involving more than 250 cables. The package requires 192K bytes of core on the 360/370, but runs on ICL 1903 CPUs as well. The design module costs \$25,000. Lease plans are also available from ERA on Cleve Road.

Random Items

Two software packages for Beta COM 600L and 700L units, from Gould Data Systems Division, Newton, Mass., permit the microfilmers to accept IBM 360 variable length blocked records, and format both fixed and excess line-erasable records, and indices on the film output. Version VI of Peneval, the direct access library system from Panaphic Systems Inc., Oak Brook, Ill., is being field tested prior to general release to users of older versions. There are said to be 25 requested enhancements in the new version.

PDO Automation Inc. has opened a second office at 5100 N. Federal Highway, Ft. Lauderdale, Fla., to extend the service area of its data entry operations. The company says it can provide 24-hour, 7-day-a-week service to jobs. Users of low-speed terminals linked to McDonnell Douglas Automation's XDS Sigma 7 can utilize the batch processing capabilities of the company's 360/195 as well, through a contract with the company's Professional Batch Service. Interactive Data Corp., Waltham, Mass., is strengthening its time-sharing service by replacing its single 360/67 with a duplex processor.

Correction

MINNEAPOLIS — The Series 2000 Data Base Management System from MRI Systems [CW, March 8] has been installed and in use on the Control Data Corp. Cybernet time-sharing network "for some time," according to a spokesman at Cybernet headquarters, 4650 W. 77th St., 55345.

Service, Inspections...**Scheduler Watches Repeated Tasks**By Don Levitt
Of the CW Staff

ATHENS, Ga. — Scheduling and reports of service on equipment, or any other periodic activity, are produced by the Sperry Automated Preventive Maintenance program. The software, which is catalogued as GSC-11408, The \$25 Fortran IV program can control maintenance schedules for DF hardware, but there is nothing in the package limiting it to that or any other equipment.

GSC-11408 has been used to time intervals for recalibration of oil refinery gauges and walk-through inspections of seldom-used buildings. The file structure allows complete freedom of task description and type of equipment or facility to which the task is related, a company spokesman said.

Frequency of activity is defined, as the program stands, in terms of meter hours or calendar days, but these fields can be redefined to serve any measurement scale the user wishes.

Each record in the file includes a series of "fixed data" fields, to define the job to be done, who is to do it and when it was last done, it also may include an expandable series of fields showing the results of each repetition of the job.

The records are supported by file maintenance, including ability to handle changes to the file, these routines print out those tasks which should be done

"now," one to a page, so that they can be distributed appropriately.

The user can also extract a list of tasks to be performed within a given time frame from his chosen file. If the task is long enough to require several repetitions of a task, the report will show this and the number of man-hours needed for each task.

Alternative processing options allow the user to extract maintenance histories by equipment item number, maintenance

costs by facility, or to print out the contents of the data file.

GSC-11408 was written at Goddard Space Flight Center and uses approximately 27K bytes of core under OS/360.

Cosmic is a clearinghouse for programs, most of which were written originally for use at government DF installations, and which are now available for general use. It is part of the Computer Center, Information Services, 112 Barrow Hall, University of Georgia here in Athens, 30601.

Tables in 'Swapper' Generator Change User Terms Into Cobol

GRAND RAPIDS, Mich. — Programming in terms of tables appropriate to different applications is the trademark of Swapper, a Cobol generator developed from Brown Bros. Enterprises (BBE). The phrases used by the programmer are entered with their Cobol "translates" just before Swapper is used.

Swapper also supports shorthand-style coding so that users can abbreviate many of the verbose but heavily used phrases required by Cobol. As many as 150 statements can be used which don't originate from application to application can be stored in a 32K CPU, even allowing 8K overhead for an operating system, according to BBE.

The reformatting is done without intervention and in accordance with predefined rules. Procedure statements are indented, and parameter, conditionality, initialization, and dependent operations are indented from their base statements.

And subfields within the data division are set in under the higher level items of which they are a part.

Swapper is available from BBE for a one-time charge of \$100. The firm is at 509 Fuller Ave., N.E., 49503.

'Oliver' Eases T/S System Use

PITTSBURGH — Subscribers of the On-Line Systems time-sharing network have been able to reduce both disk storage requirements and search times, with the techniques for sorting and extracting data developed by the company's On-Line Systems' Information Retriever (Oliver) data management system.

Information is arranged on the disk in related groups, each having a distinct number of subgroups or fields. A small file of pointer records is generated to realize more efficient use of the CPU and memory, and to allow users a "transparent" connection to users, a company spokesman said.

Special Code

For further efficiency, numeric data is converted into special codes, rather than being stored character by character. When combined with other storage techniques, this reduces the amount of disk space needed by an average of 40%, the company claimed.

Oliver is described as fully interactive and can be used in conjunction with

Fortran or Cobol programs or controlled through an English-like command language that non-programmers can use, according to the company. Security features include the use of disk access codes from either delimiter or random unauthorized access or manipulation.

On-Line Systems Inc. is at 4721 McKnight Road, 15237.

NCR Adds Distributor Software

DAYTON, Ohio — Wholesalers and distributors can generate either open-item or balance forward customer statements with the Accounts Receivable Commercial System software, distributed without cost to Century 100 users by NCR.

The software, developed by Neat/3 Systems code so that the user may adapt it to his own needs. Balance forward statements show the amount the customer owed at the beginning of the billing period, transactions posted to his account and the new balance owed at the end of

the period.

An open invoice lists prices for goods delivered to a customer regardless of when they are to be paid for, NCR noted. This type of billing allows the customer to pay in installments the prices on itemized bills, and avoids the problems of aged accounts.

A customer list of 10,000 with 1,600 to 1,700 daily transactions can usually be processed in two to three hours on a 16K Century 100 with a dual spindle disk unit, a spokesman estimated.

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Any tape error can cost you recycling time and dollars.

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So we've been working to come up with a tape that would reach you error-free, and would remain error-free. In other words, a tape that's too tough to trick.

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BASF/2000A.D. is coated with a smaller particle oxide dispersion that we developed in our own labs. The smaller particles can be applied more evenly, more compactly, more

appropriately than ever before possible. Result: greater sensitivity and uniformity in a thinner coating.

The thinner coating, in turn, means a more flexible and flatter-lying tape. Result: better head wrap, better capstan control, better head contact.

What about durability? Good question. Even though our new BASF/2000A.D. coating is thinner, it's also harder than conventional coatings. And less abrasive. Result: less head wear, longer tape life, greater longtime reliability.

And finally, our new BASF/2000A.D. base is a premium polyester, biaxially oriented. Edges are the cleanest in the

industry, cut to a tolerance of $\pm .001"$ (vs the industry standard of $\pm .002"$). We QC every step, from milling to packing. And we certify every tape.

There's one thing we don't do to our latest tape. We don't sacrifice any of the push for perfection that has always characterized our previous tapes. BASF/2000A.D., in other words, is quality added on—not a trade-off.

As you can see, a tough way to make computer tapes. But you can see something else, too: it can sure make life easier for you. Why not write for more details?

BASF Systems, Inc., Computer Products Division, Crosby Drive, Bedford, Mass. 01730

BASF 2000 A.D., a new tape that's too tough to trick.



BASF

Computer Products



NBS Publication Provides Documentation Guidelines

WASHINGTON, D.C. — Users concerned with the problem of standardizing the federal spend to certify that they can spend 25 cents to obtain the latest Federal Information Processing Standards publication (FIPS Pub 20) prepared by the National Bureau of Standards.

The Guide to Describing Information Interchange Formats, is recommended by NBS for general use throughout the federal government. Though it contains few surprises for the experienced DP manager, it provides a checklist by which he can judge his own procedures.

The booklet reviews the media and the methods by which information is collected and interchanged. It also defines how the physical and logical characteristics of a collected file should be documented.

In FIPS Pub 20, NBS deliberately avoids defining where these characteristics should be de-

scribed, noting that they might be on an outside label, on a tape or disk, or in the documentation that accompanies a file.

The checklist is extremely thorough, and NBS notes that some characteristics do not apply in all cases. For example, 21 physical characteristics, ranging from the name, address and phone number of the person(s) who produced the file, through an indication of how many records are on the file "if any" and its security classification of the data.

The logical characteristics are divided into those applying to the entire file, each record type, the data elements and the field elements.

The booklet may be ordered from the Superintendent of Documents, Government Printing Office, 20402, where it is identified as SD catalog number C13.52.20.

TP System Supports IBM 2260

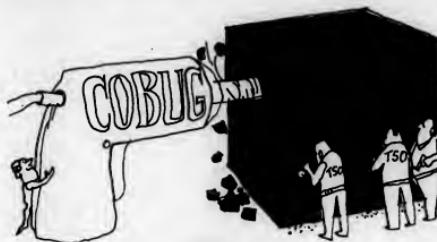
ARLINGTON, Mass. — The Telecommunications Programming System (TPS) from the PDP Computer Services, Inc., now allows an OS/360 user to control a teleprocessing network through a minicomputer used as a communications processor, now includes a support module for IBM 2260/2265 and compatible keyboard display terminals.

Through modules previously available, TPS users can handle teletypewriter and ASCII displays. The new module adds the 2770/2741 family of terminals and binary synchronous terminals such as the IBM 2780.

TPS consists of three subsystems: the communications processor program, which allows the user to choose in a choice of modes, the Communications Access Method which replaces IBM access methods, and the communications program generator, which allows the user to build programs for the minicomputer on the 360.

Prices for TPS depend on the basic use of the mini, whether 2700 emulation or full front end, and the choice of other subsystems and support modules.

The firm is at 800 Massachusetts Ave., 02114.



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<input type="checkbox"/> Please send me preliminary information on COBUG. _____	
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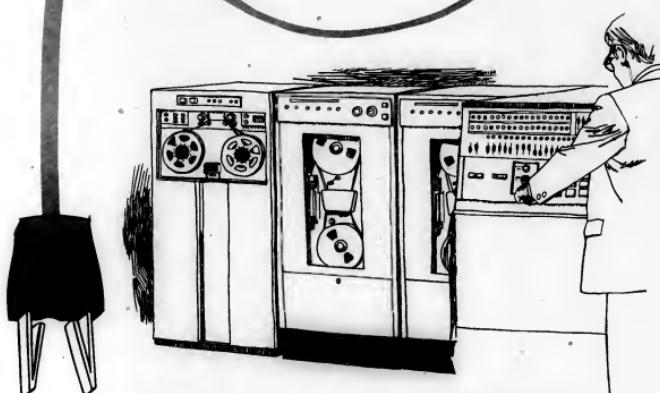
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ATLANTA — An extensive program of meetings on "Improving System Performance" is planned for the Honeywell Users Group Spring Conference here, April 10-12.

Users may participate in the User Improvement Forum, designed to reveal the "experiences of individual members in solving

**Societies/
User Groups**

and/or circumventing vendor software problems." Experiences being covered by the forum include software modification, both enhancements and corrections; in-house software, or "special" programs written to satisfy unique needs and quietly provided for by the vendor; and procedures, such as "particularly successful methods of handling test, compile, program revisions, etc."

The Honeywell Forum Special Interest Group will request advance notice of problems, questions or subjects for discussion.

The first day's meetings will be devoted primarily to discussions on Cobol, while most of Tuesdays' sessions are on Fortran. The remaining sessions at the Working Meeting will include the Mod 8, Mod 4 and Q/S 200.

Wednesday's general session

will feature a keynote speech by Howard Bromberg, president of Information Management, Inc. and a presentation of the Series 2000. Afternoon sessions include discussions on system evaluation techniques, software

monitoring, field engineering support systems, data base special interest group, specifications for selection of computer alternatives, and a diagnostic clinic, called an "open discussion."

Ryan to Keynote
HOUSTON — Dr. Frank B. Ryan, director of House Information Systems in the U.S. House of Representatives, will be the keynote speaker at the Univac Users Association Spring Conference, April 11-13, at the Shamrock-Hilton hotel here.

Ryan will discuss his concept of "On-Line Applications" on the legislative process in Washington, with particular reference to its effects on senators and representatives. He is currently involved in the design, purchase and installation of all computer systems for the House of Representatives.

The conference theme is "Accelerating Productivity Through Computer Utilization." Workshop sessions for each Univac computer system will be held, as well as sessions on automated specific computer applications. Special interest groups of state and local government, financial publications and printing users will meet April 10.

For more information contact

C.J. Rachel, executive secretary, UUA, Univac Division of Sperry Rand Corp., P.O. Box 500, Blue Bell, Pa. 19422.

**IIA Features Session
On-Line Centers**

NEW YORK — A session on "On-Line Information Centers Managing Machine Readable Information Resources" will be featured in the Fourth National Conference of the Information Industry Association (IIA) here April 10-12 at the Roosevelt Hotel.

Presentations on Illusions and Diversions of the Information Resource, Information Utilities, and Time-Sharing Vendors of On-Line Data Bases will be featured at the session.

Other sessions include: Information Centers — Robust Phenomena of the 70s; Information Center Operations, and Data Base in Strategies.

Users Plan Output Format Library

DAYTON, Ohio — The NCR Retail Computer User's Group will meet April 11 and 12 to establish a library of output formats and review methods to combat the "malware" and "bugs" in the programs that have been discussed previously.

Each user is requested to bring a sample of each report produced by his store. The library "may" be an important source of information for anyone contemplating new systems or mod-

ifications," according to President Joel H. Newman.

Attendees will have a chance to see the new NCR Interim Reporting System being piloted at the Elder-Beerman store here and to participate in an open discussion period with representatives from NCR.

For more information on the meeting at Holiday Inn South, contact Joel H. Newman, Davidson & Leventhal, 201 Main St., New Britain, Conn. 06050.

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Calendar

April 5-7, Paris — Fourth Annual Electronics Conference, Contact: IPC Business and Industrial Training Ltd., 161/166 Fleet St., London, EC4, England.

April 12-14, Venice — Second Congress of the International Computing Symposium, Contact: Federazione delle Associazioni Scientifiche e Professionali, P. le Morandi 2, 20121 Milan, Italy.

April 13, Washington, D.C. — Educom Annual Spring Conference "Networks for Higher Education," Contact: H. Eugene Kessler, Executive Director, Educom, Interuniversity Communications Council, Inc., P.O. Box 364, Roosevelt Road, Princeton, N.J. 08540.

April 14-21, Orlando, Fla. — "Design Computer-Based Products '72" Contact: American Management Association, Inc., AMA Building, 135 W. 50th St., New York, N.Y. 10020.

April 24, New York — Communications Systems Management Association Spring Regional Seminar on Interconnection, Contact: T. Richfield, Communications Systems Management Association, Suite 303, 1102 West St., Wilmington, N.J. 08802.

April 25-26, Miami, Fla. — "1972 National Operations and Automation Conference," Contact: American Bankers Association, 1120 Connecticut Ave., N.W., Washington, D.C. 20036.

May 4-6, Amsterdam — The Third International Conference on Computer Management, Contact: Conference Secretariat, Hip-Administrative Processing Group, 6 Stadhouderskade, Amsterdam 1070, The Netherlands.

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The Professional's Viewpoint

CDP Exam Called Current, Ambiguous

Candidates responding to the SCDP 1972 Candidate Debriefing Questionnaire [CW, Feb. 16] mainly felt the examination was more up to date than outside criticism realized, although attention paid to specific developments such as COM and Cobol had some negative comments.

The major criticism in nearly all the responses, however, concerned the ambiguity of the questions.

"The Professional's Viewpoint" is prepared by the Society of Certified Data Processors, 633 Central St., Framingham, Mass. 01701, in cooperation with the editors of Computerworld.

—, the candidate had to guess what the examinee was thinking about, rather than answer the questions. This was particularly shown in the comments on the management sections. Readers felt that situations were taken out of context.

The amount of non-accounting questions in the quantitative methods section was criticized by several readers, while some responses were con-

cerned with whether the slant of the questions was right.

Specific responses follow.

... Relevant to a Degree?

"All sections were relevant to a degree. However, of specific items more than general principles. It seems to be unimportant to remember that the formula for binomial distribution (it can be looked up when needed), and more important to remember, the need to determine whether one's population has the characteristics of binomial distribution.

"I found the principles of management section most difficult because I could not determine confidently the point or points tested for, and therefore, guessed at the answers. Again, it seems that the need for testing in this area is relevant, but the questions failed to accomplish the goal." Jay Hocott

Little Rock, Ark.

'Most irrelevant, Ambiguous'

"I feel quantitative method is a necessary requirement to meeting the central objectives of the CDP. However, the 1972 exam was the most irrelevant, ambiguous task I have ever undertaken. Of the 60 questions in the exam, only 12 were remoteness related to accounting, and the rest were either math or statistics."

"The unfortunate fact was that there were extremely few of these remaining 48 that specifically pertained to the data processing profession. In the management section, about 50% of the questions were irrelevant, but in quantitative methods the ratios were completely out of balance and slanted toward scientific and mathematical problems."

"However, few specific questions about operations research or practical applications of statistics appeared on the exam. Questions requiring complete memorization and recall were frequently the order. I feel that section should be carefully studied to make the questions relevant to the central objectives before the next exam in 1973."

Robert J. Brumm
Green Bay, Wis.

Reader Finds Potentially Ambiguous Questions

"Did I find any questions potentially ambiguous? Dozens of them. A few were ranked more than others:

- "The question about largest capacity auxiliary storage devices generally available in normal use. Two hedges in the same question! Depending on where you work and what you know, any of the answers offered was a good bet."

- "The question about finding the area under a curve. The value of the function is not normally considered the altitude of the curve. The similar answer, the integral of the curve, could also have been chosen, depending on whether you wanted an analytic solution (which might still require a computer program to evaluate) or a direct integration technique, which would use the altitude, i.e. perpendicular height above the origin."

- "Most of the questions containing 'generally', 'usually', 'most important', 'least important'. Strong arguments could have been made for several answers based on specific hardware or language involved, objectives of the installation or situation."

Patricia P. Watt
San Jose, Calif.

'SCDP Has Had an Impact'

"I got the feeling that the concern expressed by Alan Taylor and the Society of Certified Data Processors has had an impact upon the DPMA in reviewing the exam."

L.C. Merich
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CI Notes

'Bubble' Products Near?

NEWTON, Mass. — The first products using the long-awaited magnetic "bubble" technology are reportedly being readied for introduction by Cambridge Memories Inc. here.

The two products, expected by the Spring Joint, use the firm's Domain Tip technology. One is said to be aimed at the cost market, offering significant cost savings of around one-tenth the cost of cores.

The other is expected to be a disk replacement with greatly increased performance at about the same per bit price as disk units currently available.

Burroughs, DSA Sign Pact

WASHINGTON, D.C. — Burroughs has tested from the Defense Supply Agency a \$243 million contract with Burroughs for two "very large" B6500 configurations.

IBM has protested two similar contracts to Burroughs and now demands that the two be withdrawn. The computers covered in the new pact will be used as part of the Defense Department's Defense Integrated Data System (Dids) which will serve as a central repository of logistics information.

Govt. Blasts IBM Plug

DES MOINES, Iowa — The use of official state stationery by IBM in a release plugging IBM computers has been blasted by Gov. Robert D. Ray here.

"I do not use my position for advertising purposes or to do the same," the governor said after learning that State Comptroller Marvin R. Selden had allowed IBM to use state stationery for a release on the state's computer system. Selden told the governor it was a mistake on his part and that he wasn't thinking about the commercial aspects.

Ray promised he would not allow any more IBM releases to be sent out on state stationery. "This is not a proper practice for the state to be part of a promotion for a particular company," he said.

Supershorts

Iomega will acquire the business and assets of the data activities segment of Digitronics Corp., under a recent agreement.

Addressograph Multigraph Corp. has announced its entry into the point-of-sale equipment market following an agreement with the Deltaplano Inc. to market and service a new electronic inventory and cash control system for the food-service industry.

Infonics, Inc. has been granted a patent covering high-speed in-cassette duplicating equipment.

The Air Force has accepted its first Planar Coax packed computer, delivered by Bunker Ramo Corp., under an advanced development project.

Data Products Corp. has delivered its 250th SR 300 mini-card reader to Data 100 Corp. under a long-term, \$750,000 contract.

Overall Software to Lag

Packaged Products Spurt Predicted

By E. Orals Lundell Jr.

or the CW staff

NEWTON, Mass. — Economic recovery in the software industry will lag behind the rest of the computer industry, according to International Data Corp. (IDC) here.

At the same time, the firm predicts that sales of packaged software will spurt by 24% this year and 26% next year. Other segments of the software industry will also show recovery by 1973 IDC said, powering the software market to a 15% to 20% growth rate in that year.

The report indicates that revenues from packaged software products will increase to \$126 million this year from \$102 million in 1971. By 1973 revenues from packaged software will increase to \$159 million and by 1976 IDC expects the total software industry to reach \$289 million.

The growth rate in custom programming will not be as rapid, IDC predicts, but will start from a larger base of revenues.

From a base of \$346 million in 1971, custom programming will grow to \$464 million by 1976, the firm says.

But the prospects are less bright for this year and next. In 1972 IDC expects custom revenues to drop to \$278 million and fall back to \$320 million in 1973, just before recovering in 1974.

The total revenues in the software market, hit by the decline in custom work, will drop from \$448 million in 1971 to \$404 million this year but will then rise to \$479 million in 1973 and \$753 million in 1976.

General demand for software, IDC states, is proportionate to that for hardware and computer shipments will rise 19% this year, thereby creating the demand for software of all types in 1973.

In addition, the report claims that "top-notch programmers seem to have disappeared from the ranks of the unemployed, so software development will require increasing amounts of outside assistance from firms servicing the users' needs for software."

Software development budgets are increasing being spent for packaged software as opposed to custom work, the report states.

In 1972 alone the percentage spent on

packages will increase to 31% of the total external software budget, up from 23% spent in this area in 1971, the firm adds. But while expenditures for outside software will be up, IDC notes the user continues to spend most of his software budget on internal projects.

In 1971 alone, IDC estimates users spent \$3.2 billion for internal software development as opposed to the \$448 million spent on software from outside sources and vendors.

"This difference will increase still further," the report claims, "as the availability of additional packages allows users to obtain more outside software for a lower total cost."

'Fourplex' May Be CDC Method To Compete With IBM 3330 Sales

By Frank Piatta
or the CW staff

MINNEAPOLIS — "Fourplex" may be the next technique used by Control Data Corp. in its 3320 replacement effort.

The technique, still under development, involves increasing the amount of data stored on a standard 2316-type pack by a multiple of four, resulting in four double density drives and equal to that of the 3320.

Company plans for add-on peripherals for the 360 Series include core and tape drives as well as disk replacements, according to W. H. Heath, director, sales

operations.

Control Data can be expected to market its OCR devices more actively, Heath said. Led by a laser scanner near completion, the stand-alone line will include a full range of devices to meet the needs of the market, according to Heath. A set of plug-compatible units is also under study, he noted.

The laser scanner, Heath said, offers the highest throughput for the dollar of any OCR technique.

Objections to the dual-density devices because they are not compatible with 2314-type units are usually overcome by the installation of a spare drive unit as a backup in case of drive failure, Heath added.

The problems of 500 users have been handled by add-on memories, in the area of maintenance, maintenance, have a possible negative effect on the sale of all compatible devices, according to Heath.

He said some users will reevaluate their decision to go independent if they fear a total loss of memory.

The problem of IBM, however, are not seen by Heath as affecting CDC marketing plans. He pointed out the user of CDC drives could save as much as 17% on nonupgradable, noncancelable five-year contracts.

Figures Revised

Minis Pace Process Control Sales

NEW YORK — Minicomputers will account for over 31% of the total computer sales to the process control market by 1975, up from just over 21% in 1970, according to Frost and Sullivan.

In a new survey, the research firm has revised its estimate of the growth in the market slightly downward from projections a year ago.

Overall, the firm now predicts the total market will exhibit a 7.8% annual growth rate over the next five years — and the use of computers in process control systems will grow by 14% in the same period.

Computers used with such systems were at \$1.1 billion in 1970, and this will grow to \$1.75 billion in 1973, \$2.25 billion in 1975 and \$4.15 billion in 1980, the firm said.

All major domestic end user markets will increase their purchases of process control equipment led by the chemical industry as the largest end user, Frost and Sullivan said.

Electronics, metals and the petroleum industry will be the next largest customers for process control equipment, but the water supply and sewage treatment market is the most rapidly growing user of process control equipment, the firm said.

It is still too soon to determine the long-term effects of President Nixon's new economic program on the process control market, the firm said, but the passage of the investment tax credit should result in increased process control

sales, it added.

At the same time, Frost and Sullivan said foreign sales will grow more rapidly than domestic sales over the long term.

Both domestic and foreign market demand for process control computers and on-line analytical instruments should grow more rapidly than the total process control sales over the next few years.

Telex Revises Suit Against IBM

TULSA, Okla. — IBM's fixed-term lease plan has been challenged as part of Telex Corp.'s \$875 million antitrust suit against the industry giant in federal court here.

Cray to Leave Control Date, Plans Small Research Firm

MINNEAPOLIS — Seymour R. Cray, the dominant force in the firm's computer line, will phase out of his full-time position with the firm during the next year, but will continue to assist the firm on the development of the 8000 line.

Cray said he was contemplating "the establishment of a very small basic computer research laboratory funded by myself, and perhaps a few personal friends."

After he phases out his activities with Control Data, Cray will continue to serve as a consultant to the firm, and Control Data will possibly make an investment in his new firm.

Telex has updated its suit with a request for temporary and permanent injunctions barring IBM from offering extended term leases to Telex customers and from renewing any of its present fixed-term leases on their expiration.

Contrary to IBM,

Telex charges the extended lease plan, introduced with the 3705 controller, and the fixed 12- and 24-month lease plans, introduced last May on disk drives, tape drives and printers, are contrary to the previous IBM policy of offering monthly renewals.

It also charges the plans "lock" IBM customers into IBM equipment and customers are penalized by the plans when they want to switch to compatible equipment from other manufacturers.

In the original suit Telex asked for the damage of \$18M and treble damages that amounted to \$875 million.

IBM said the new charges were without merit and it would defend itself in court.

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The Format

Each Day 9:00-9:40 Keynote address by a nationally known expert — an independent, not a vendor — on the day's main subject. Sets the stage for discussions.

9:40-10:30 Panel discussion led by regional experts chosen for their progressive management principles. Questions encouraged.

10:40-11:45 Workshops — panel members conduct separate workshops. Your specific questions fielded, worked out.

12:15-1:30 Conference luncheon — keynote speaker summarizes chief points covered during panels and workshops.

1:00-7:30 Exhibits open, stay open 'till 7:30. Exhibitors will show the latest in hardware, software, services.

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- Communications equipment from independent suppliers.
- Data transmission via private (lines, microwave) networks.
- Data transmission via carriers (lines, microwave).

Third Day: Operational Efficiency

Keynote speaker: Charles Lecht, President, Advanced Computer Techniques, N.Y., N.Y., author of *The Management of Computer Programming Projects*.

Panels and workshops will be grouped by these four subjects:

- Core extensions.
- System/utility software modifications.
- Independent peripheral usage.
- Dedicated systems vs. general purpose computers.

Panel Members & Workshop Leaders

The regional experts who will run the panels and workshops have been chosen from a wide range of firms and institutions. Some will participate in more than one session, depending on their experience and expertise.

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'The Peripherals Company'?

Telex Plans Add-Ons, Tape, Disk Devices

By Frank Plasta
Of the CW Staff

TULSA, Okla. — Telex plans to expand its line of products in an attempt to be known as "the peripherals company" by 1975, company officials said here last week.

The line will include add-on compatible memories for the IBM 370, to be delivered before the end of 1972, and, further in the future, add-on tape and disk terminals. The company eventually plans to produce its own computers, according to officials.

Bipolar Circuitry

The add-on memories will be manufactured entirely by Telex,

systems. The 6830 control unit is currently undergoing pilot production in the company's San Jose, Calif., plant, and will most certainly be coupled with disk drives supplied by Information Storage Systems, according to John F. Kevin, general manager of the California plant. Drives built by Century Data Systems and Control Data had been considered.

Telex also plans to produce its own disk drives at the Santa Clara plant, Kevin added.

The Telex 6420 series of magnetic tape drives is also nearing production status, and is undergoing final testing at this time.

Field Modifications

The units, intended as replacements for the IBM 3420/3410 systems, are designed to be upgraded or downgraded in the field in two hours or less. This, Telex said, benefits the user who buys his peripherals from the company since it allows the system to be reconfigured easily.

The Telex disk controller, Kevin said, includes several unusual features not found on the IBM equivalent. The device is programmed with microprograms, loading loaded from a cassette that performs automatic "self-diagnosis" at initial program load. An off-line interface testing capability is included.

Peripherals are expected to be similar to or better than that of the 3330, with better serviceability than to fewer, larger components. TTL, MSI and LSI technologies are used.



Prototype of solid state Telex memory undergoing tests.

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Telex technicians make adjustments on prototype disk controller. (CW Photos by F. Plasta)

Telex is developing its own software for on-site testing, diagnostic and repair function for off-line testing and operating system subroutines for on-line use.

A general-purpose I/O exerciser to check out memories as well as tape and disk drives is also being developed.

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The unit, which is media independent, will run under a diagnostic monitor that is an extended version of IBM's Friend.

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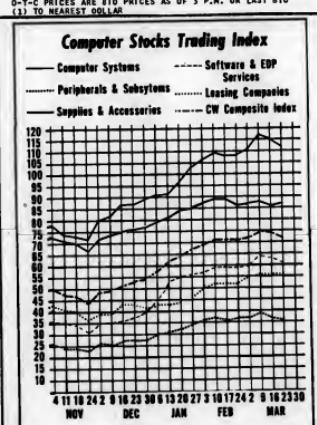


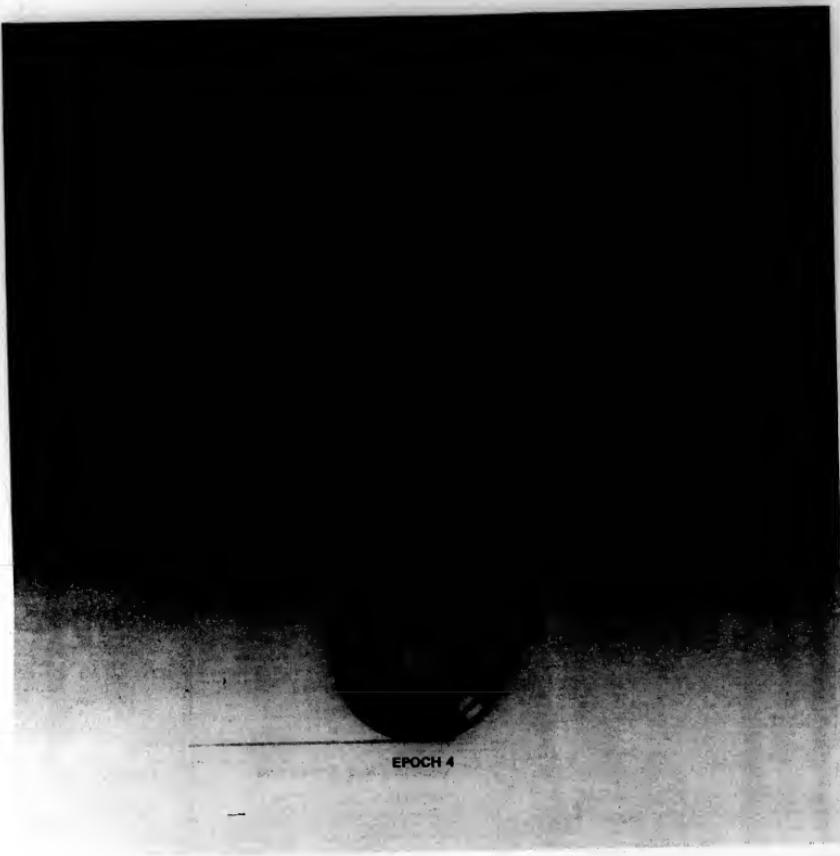
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